

## Brief clinical history:

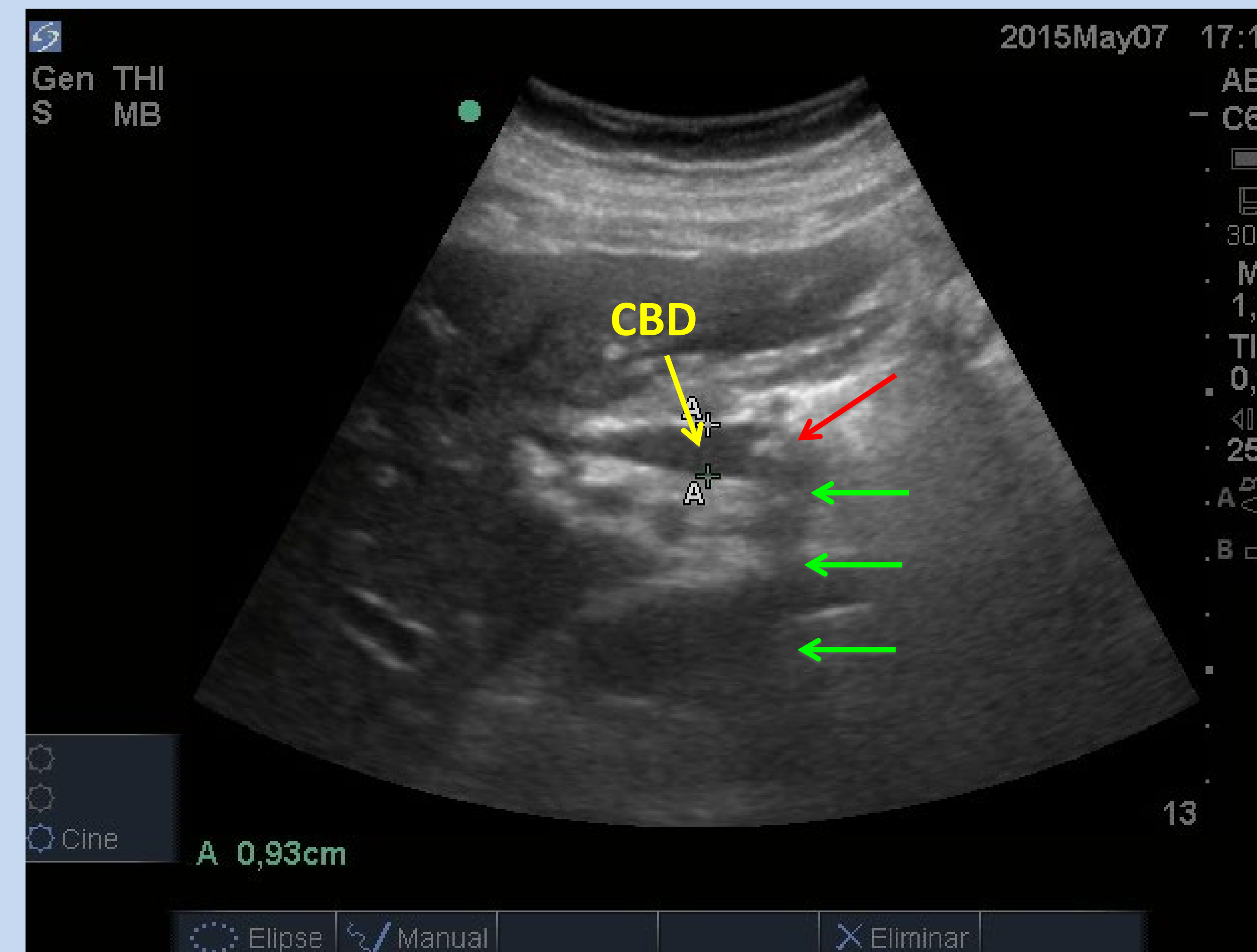
A 59-year-old woman with no personal history of interest, with fever and right hypochondrium pain for several days.

## Misleading elements:

We present the case of a patient who goes to the emergency department for fever and right hypochondrium pain, and thanks to POCUS, an early diagnosis of cholangitis with sepsis of biliary origin was made. We used a Sonosite M-Turbo, with convex probe C60e/5-2MHz.

## Helpful details:

On physical examination, it was found that she was affected, with a poor general condition, mildly icteric, with hypotension, tachycardia and tachypnea; and with painful abdomen on palpation in right hypochondrium region, without peritonism. The emergency physician (EP) performed an ultrasound that showed in the gallbladder hyperechoic images with posterior acoustic shadow, corresponding to biliary lithiasis, together with dilation of the common bile duct with image suggestive of lithiasis. The clinical picture suggested a sepsis of biliary origin. The patient was treated in the emergency department (ED) with early combination empiric antibiotic treatment and hemodynamic support. Subsequently, endoscopic retrograde cholangiopancreatography (ERCP) was performed, releasing the lithiasis that obstructed the drainage of the bile duct, resolving the condition, with good clinical evolution.



**Figure 1:** dilation of the common bile duct (CBD) with image suggestive of lithiasis (red arrow) with posterior acoustic shadowing (green arrows).

## Differential and actual diagnosis:

Typically, patients with acute cholangitis will have symptoms suggestive of the diagnosis (fever and abdominal pain) along with imaging findings that suggest biliary obstruction. In such cases, the diagnosis is then confirmed by ERCP. However, patients with other disorders may also present with symptoms such as fever and abdominal pain, such as: biliary leaks, acute diverticulitis, cholecystitis, appendicitis, pancreatitis, liver abscess, right lower lobe pneumonia/empyema, intestinal perforation, etc... The actual diagnosis of our patient is cholangitis with sepsis of biliary origin.

## Educational and/or clinical relevance:

In recent years, the use of clinical ultrasound by the EP has been increasing, obtaining faster and more conclusive diagnoses. S. Lahham et al. carried out a prospective study on 158 patients, published in 2017, to assess the usefulness of measuring the common bile duct in the emergency department, affirming that the measurement of it is fundamental in clinical ultrasound in the emergency services. Cholangitis is an ascending infection of the bile duct, usually due to the obstruction of it, which causes great systemic repercussion. It is a medical emergency and an ultrasound is recommended as an imaging test to determine the cause and level of the obstruction. In this case, thanks to the use of clinical ultrasound, we were able to establish the etiological diagnosis of sepsis in the same critical ward, initiating early empiric antibiotic treatment and improving the patient's prognosis. Point-of-care ultrasonography (POCUS) represents an extraordinary advance for the diagnosis and evaluation of serious patients in the ED. The training and qualification of this technique for a comprehensive and quality care is a priority in these departments. Its use and dissemination must be paramount, since it is a cost-effective and quality measure.